

**COMMONWEALTH OF VIRGINIA**  
**Department of Environmental Quality**  
**Southwest Regional Office**

**STATEMENT OF LEGAL AND FACTUAL BASIS**

City of Bristol, Virginia, Integrated Solid Waste Management Facility  
2125 Shakesville Road, Bristol, Virginia  
Permit No. SWRO11184

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, the City of Bristol, Virginia has applied for renewal of the Title V Operating Permit for its Integrated Solid Waste Management Facility at 2125 Shakesville Road, Bristol, Virginia. The Department has reviewed the application and has prepared a Title V Operating Permit.

Engineer/Permit Contact: \_\_\_\_\_

Date: March 8, 2006

Air Permit Manager: \_\_\_\_\_

Date: March 8, 2006

Deputy Regional Director: \_\_\_\_\_

Date: March 8, 2006

## **FACILITY INFORMATION**

### Permittee

City of Bristol, Virginia  
300 Lee Street, Bristol, Virginia 24201

### Facility

City of Bristol, Integrated Solid Waste Management Facility  
2125 Shakesville Road, Bristol, Virginia 24201

County-Plant ID No. 51-520-00160

## **SOURCE DESCRIPTION**

NAICS Code: 562212 - Collection and disposal of non-hazardous solid waste.

City of Bristol Integrated Solid Waste Management Facility consists of three landfill units located on contiguous property and separated by landfill haul roads. All three landfills units have accepted only municipal solid waste (MSW) and non-hazardous special waste.

The first landfill unit designated by Solid Waste Permit Number 221, accepted waste from 1977 to 1986. This unit is closed.

The second landfill unit designated by Solid Waste Permit Number 498, accepted waste from 1986 to present. The waste acceptance rate of this unit is minimal. Wastes in Landfill No. 498 are being reclaimed through landfill mining. Excavated material is screened to separate the waste from daily/intermediate cover and recyclable materials, such as ferrous and non-ferrous metals. The waste is then disposed in the third landfill unit. Excavated soil is used elsewhere in the facility and the recyclable materials are processed appropriately.

The third landfill unit designated by Solid Waste Permit Number 588 began accepting waste in March of 1998 and is currently active.

A gas collection system has been constructed and is currently operating at each landfill unit (221, 498 and 588). Construction of the gas collection system for unit 588 is ongoing with the progression of waste filling. Collected gas from each landfill unit is controlled by combustion in a Parnel Biogas open utility flare and/or a Patherm Model 2012 controlled-air incinerator. A second, permitted utility flare (LFG&E) was removed from the facility on September 3, 2003.

Emissions from the landfill units include non-methane organic compounds (NMOC), volatile organic compounds (VOC), hazardous air pollutants (HAP), fugitive dust and products of combustion from the utility flares. Wood and packaged paper wastes delivered to the landfill are combusted in the incinerator. Emissions from the incinerator include NMOC, VOC, particulate

matter (PM), carbon monoxide (CO), nitrogen oxides as nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>) and HAP.

The facility is currently operating under a minor New Source Review (NSR) permit issued on July 7, 2003, as amended November 13, 2003 and October 13, 2004, and a Title V operating permit with an expiration date of March 12, 2006.

## **COMPLIANCE STATUS**

A full compliance evaluation of this facility, including a site visit, was completed on August 5, 2005. In addition, all reports and other data required by permit conditions or regulations, which are submitted to DEQ, are evaluated for compliance. Based on these compliance evaluations, the facility has not been found to be in violation of any state or federal applicable requirements at this time.

## EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
Fuel Burning Equipment (PCD-01, PCD-02 and P02)							
P02	S02	Crochet Equipment Co., Pactherm Model 2012 incinerator	1,700 lb/hr	Afterburning secondary chamber	C02	PM, CO, VOC and NMOC	7/7/03 (amended 11/13/03 and 10/13/04)
PCD-01	S01	Parnel Biogas utility flare	1,250 scfm	---	C01	NMOC and VOC	7/7/03 (amended 11/13/03 and 10/13/04)
PCD-02	S03	LFG&E utility flare (removed 9/3/03)	150 scfm	---	C03	NMOC and VOC	7/7/03 (amended 11/13/03 and 10/13/04)
Process A – Municipal Solid Waste (MSW) Landfill Units (P01)							
P01	---	Closed MSW landfill unit, Solid Waste Permit No. 221	694,700 yd³	Parnel Biogas utility flare, Pactherm Model 2012 incinerator. The LFG&E utility flare was removed on 9/3/03.	C01, C02 and C03	NMOC and VOC	7/7/03 (amended 11/13/03 and 10/13/04)
	---	MSW landfill unit, Solid Waste Permit No. 498	1,199,224 yd³				
	---	MSW landfill unit, Solid Waste Permit No. 588	7,700,000 yd³				
Process B – Incinerator							
P02	S02	Crochet Equipment Co., Pactherm Model 2012 incinerator	1700 lb/hr	Afterburning secondary chamber	C02	PM, CO, VOC and NMOC	7/7/03 (amended 11/13/03 and 10/13/04)
Process C – Landfill Surface and Roads							
P03	---	Landfill surface and haul roads	---	Wet suppression	---	PM	7/7/03 (amended 11/13/03 and 10/13/04)

\*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

## EMISSIONS INVENTORY

A copy of the 2004 Emission Statement is attached. Emissions are summarized in the following table:

### 2004 Actual Emissions

	Criteria and Hazardous Air Pollutant (HAP) Emissions in Tons/Yr						
Emission Unit	VOC	NMOC	CO	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>10</sub>	HAP
P01, Landfill	7.1	18.2	0	0	0	0	2.5
PCD-01, Utility Flare	trace	trace	2.5	0.11	0.45	0.11	trace
PCD-02, Utility Flare	0	0	0	0	0	0	0
P02, Incinerator	0.1	trace	2.5	0.35	3.6	2.2	trace
P03, Fugitive Dust Emissions	0	0	0	0	0	6.1	0
Total	7.2	18.2	5.0	0.46	4.05	8.41	2.5

Calculations of HAP emissions from the incinerator are included in Appendix A attached to this Statement of Basis. Emissions are summarized in the following table:

### 2004 Incinerator Hazardous Air Pollutant Emissions

Pollutant	HAP Emission in Tons/Yr
Cadmium	7.31 E-05
Dioxins/Furans	2.83 E-05
Hydrogen Chloride	3.25 E-01
*Lead	1.12 E-03
Mercury	6.76 E-05

\*Lead, as part of the infrastructure of a unique chemical substance, is defined as a HAP. Lead by itself is a criteria pollutant.

## EMISSION UNIT APPLICABLE REQUIREMENTS – FUEL BURNING EQUIPMENT REQUIREMENTS (P02):

### Limitations

The following requirements are from the minor NSR Permit issued on July 7, 2003, as amended November 13, 2003 and October 13, 2004:

Condition 4.g.ii: When using landfill gas to fuel the incinerator, P02, the unit must comply with the requirements of 40 CFR 60.18 to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume, dry basis as hexane at 3 percent oxygen.

Condition 7: Fugitive dust controls shall include the following, or equivalent, as a minimum:

- a. Dust from ash and material handling and load-outs shall be controlled by wet suppression or equivalent control measures (as approved by the DEQ).
- b. Fugitive emissions from opening the primary combustion chamber shall be minimized by water sprays or equivalent, as needed. There shall be no exemption from this requirement due to cold weather.

Condition 11: Particulate emissions, carbon monoxide emissions and opacity from the incinerator, P02, shall be controlled by a secondary combustion chamber and shall be in operation when the Pactherm incinerator is operating.

Condition 12: The minimum primary and secondary chamber temperatures in the incinerator, P02, shall be maintained at 1400 °F and 1600 °F, respectively, when the incinerator is in operation, except when feeding a load of waste. The listed minimum primary and secondary chamber temperatures shall be maintained until no combustion materials are left on the hearth.

Condition 15: The burn-down cycle shall be automatically controlled and the minimum burn-down cycle time shall be the manufacturer's recommended time of 2 hours after the last batch is charged into the incinerator, P02. The incinerator shall remain in operation until such time that no combustible materials are left on the hearth. In no event shall this be less than the time required to destroy any visible and odorous emissions.

Condition 17: The incinerator, P02, shall be charged with no more than the rated load of 3,500 pounds per cycle and 4,640 tons per year of debris waste and other wood materials that are not contaminated with and do not contain or have affixed thereto plastic or other chemical materials. The approved waste includes cardboard-boxed paper documents, lumber, stumps brush leaves, pallets, wooden boxes, spools, and wood materials, excluding any type of waste or material not listed. The unit shall not burn raw municipal waste, refuse, animal carcasses, medical waste, garbage, liquid waste, or hazardous waste. No reclaim materials shall be combusted in the incinerator. For the purpose of this condition, reclaim means any material excavated or recovered from the landfill. The cycle weight may be estimated from the amount of load placed on the moving floor loader. Annual limits are based on the sum of each consecutive 12-month period.

Condition 18: The incinerator shall be charged with no more than 2,500 tons per year of cardboard-boxed paper documents that are not contaminated with and do not contain or have affixed thereto plastic or other chemical materials. The boxed paper shall be bound with packing tape or equivalent. Loose paper and cardboard shall not be charged to the incinerator. The annual limit is based on the sum of each consecutive 12-month period.

Condition 19: The approved fuels for both the primary and secondary combustion chambers in the incinerator, P02, are natural gas and landfill gas.

Condition 20: Emissions from the operation of the incinerator, P02, shall not exceed the limits specified below:

Particulate Matter	0.10 gr/dscf @ 12% CO <sub>2</sub> or 7% O <sub>2</sub>	
Carbon Monoxide	100 ppmvd 1-hr avg. @ 12% CO <sub>2</sub> or 7% O <sub>2</sub>	
Nitrogen Oxides (as NO <sub>2</sub> )	9.41 lbs/hr	10.84 tons/yr
Volatile Organic Compounds	3.3 lbs/hr	3.5 tons/yr
Sulfur Dioxide	0.66 lb/hr	1.73 tons/yr

Condition 22: Visible emissions from the incinerator shall not exceed 5 percent opacity as determined by EPA Method 9 (reference 40 CFR 60, Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.

Condition 23: Visible emissions from material handling at the incinerator, from opening the door to the incinerator primary combustion chamber, and from load-outs at the incinerator, shall not exceed 10 percent opacity as determined by EPA Method 9 (reference 40 CFR 60 Appendix A). This condition applies at all times except during startup, shutdown, and malfunction.

Condition 37: The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment and process equipment which affect such emissions:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.

- c. Have available written operating procedures for equipment. These procedures shall be based on manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

A review of 40 CFR 60, Subpart FFFF indicates that the incinerator, P02, is an affected unit subject to the requirements of either a DEQ or Federal plan under Subpart FFFF; however, until such time as a DEQ plan is approved or authority is delegated to DEQ by EPA to implement the Federal plan, those requirements cannot be incorporated into the Title V permit.

### **Monitoring**

The monitoring and recordkeeping requirements in Condition 28 of the NSR permit have been modified to meet Part 70 requirements.

Compliance with the NMOC reduction requirements contained in Condition 4.g.ii of the NSR permit has been demonstrated through stack testing of the incinerator. As long as the incinerator is properly operated and maintained, compliance with the NMOC reduction requirements can be expected. Compliance with the NMOC reduction requirements will be monitored by recordkeeping requirements for maintenance, operating procedures and operator training.

Use of fugitive dust controls and a secondary combustion chamber as required in Conditions 7 and 11 of the NSR permit will be monitored by visible emission observations and maintaining records of air pollution control device operating procedures and maintenance based on the manufacturer's recommendations, at minimum.

The incinerator shall be equipped with automatic thermostats to maintain the minimum primary and secondary chamber temperatures required in Condition 12 of the NSR permit. Chamber temperatures will be monitored with continuous temperature sensors at or near the chamber exits to indicate the temperature in each chamber.

The burn-down cycle requirements in Condition 15 of the NSR permit will be monitored by recordkeeping requirements for the length of each burn-down time and the operating temperature of the incinerator for the burn-down cycle.

The fuel requirements in Condition 19 of the NSR permit will be monitored by recordkeeping requirements for the annual amount of each fuel consumed in the incinerator.

The hourly emission limits established for NO<sub>x</sub>, VOC and SO<sub>2</sub> in Condition 20 of the NSR permit



are based on maximum capacity of the incinerator in Condition 17, of the NSR permit. If the incinerator is operated at capacity, or below, there should not be a violation of the hourly NO<sub>x</sub>, VOC and SO<sub>2</sub> emission limits. Calculations demonstrating compliance have been included in Appendix B attached to this Statement of Basis.

The annual emission limits established for NO<sub>x</sub>, VOC and SO<sub>2</sub> in Condition 20 of the NSR permit are based on waste throughput limits contained in Conditions 17 and 18 of the NSR permit. As long as the annual waste throughput limits are not violated, annual emission limits for NO<sub>x</sub>, VOC and SO<sub>2</sub> should not be violated. Calculations demonstrating compliance have been included in Appendix B attached to this Statement of Basis. Recordkeeping demonstrating compliance with the waste throughput limits can be used to demonstrate compliance with annual emission limits for NO<sub>x</sub>, VOC and SO<sub>2</sub>; therefore, recordkeeping of waste throughput satisfies the periodic monitoring requirement.

Emission limits for PM and CO in Condition 20 of the NSR permit are State BACT requirements. Compliance with these emission limits has been demonstrated through stack testing of the incinerator. As long as the incinerator is properly operated and maintained, compliance with the PM and CO emission limits can be expected. Compliance with PM and CO emission limits will be monitored by recordkeeping requirements for maintenance, operating procedures and operator training. Calculations demonstrating compliance have been included in Appendix B attached to this Statement of Basis.

The visible emissions limitation for the incinerator will be monitored by visible emission observations. The incinerator will be visually observed for a sufficient period of time once each calendar week to identify the presence of visible emissions. If visible emissions (condensed water/steam is not a visible emission) are observed during any of the observations, the permittee shall take appropriate action to correct the cause of opacity. If such action fails to eliminate visible emissions, the permittee shall conduct a visible emission evaluation (VEE) in accordance with 40 CFR Part 60, Appendix A, Method 9 for a minimum of 6 minutes. If the 6-minute average opacity exceeds 5 percent, the Method 9 VEE shall continue for one hour to determine compliance with the opacity limit. The permittee shall record the details of each visible emission observation, which shall include, at a minimum, the date and time of the observation, whether there were visible emissions, and any corrective action.

### **Recordkeeping**

The permit includes requirements for maintaining records of all monitoring and testing required by the permit. These records include:

- a. Annual hours of operation of the incinerator, calculated monthly as the sum of each consecutive 12-month period.

- b. Annual consumption of landfill gas and natural gas for the incinerator, calculated monthly as the sum of each consecutive 12-month period.
- c. Annual throughput of all approved waste to the incinerator, calculated monthly as the sum of each consecutive 12-month period.
- d. Length of each burn-down time and operating temperature of the incinerator for the burn-down cycle.
- e. Scheduled and unscheduled maintenance, operating procedures and operator training.

### **Testing**

The following testing requirement is from the minor NSR permit issued on July 7, 2003, as amended November 13, 2003 and October 13, 2004:

Condition 16: The permitted facility shall be constructed so as to allow for emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Test ports shall be provided when requested at the appropriate locations (reference 40 CFR Part 60, Appendix B).

The permit does not require incinerator tests. A table of test methods has been included in the permit if testing is performed. The Department and EPA have authority to require testing not included in this permit if necessary to determine compliance with an emission limit or standard.

### **EMISSION UNIT APPLICABLE REQUIREMENTS – LANDFILL REQUIREMENTS (P01, P02, P03, PCD-01 and PCD-02):**

The LFG&E flare, PCD-02, was temporarily used to control landfill gas (LFG) from the portion of landfill unit 588 requiring collection, as indicated by 40 CFR 60.752(b)(2)(ii)(A)(2)(i), until piping in that landfill unit was connected to the main LFG collection pipe line. The main pipe line routes LFG to the main flare, Parnel Biogas, PCD-01, or the incinerator, P02. The LFG&E flare, PCD-02, was removed when those connections were made and LFG from that portion of landfill unit 588 requiring collection was routed to the main flare or incinerator. LFG from that portion of landfill unit 588 continues to be collected and routed to the Parnel Biogas flare, PCD-01, or the incinerator, P02.

The LFG&E utility flare, PCD-02, was removed from the facility on September 3, 2003; however, it remains a permitted unit with applicable requirements in the NSR permit. Those applicable requirements along with requirements to assure compliance with standards and limitations

pertaining to the LFG&E flare must be included in the Title V permit.

### **Limitations**

The following requirements are from the minor NSR Permit issued on July 7, 2003, as amended November 13, 2003 and October 13, 2004:

Condition 3: The total design capacity of the municipal solid waste landfill, P01, is 9,593,924 cubic yards. A change in the design capacity shall require the permittee to submit an amended design capacity report to the Director, Southwest Regional Office.

The following text has been added to the above requirement in the Title V permit to clarify that P01 is made up of three (3) landfill units with a total combined capacity of 9,593,924 cubic yards:

The Integrated Solid Waste Management Facility consists of three (3) municipal solid waste (MSW) landfills that make up P01, with the following capacities:

- Closed MSW Landfill Permit No. 221 – 694,700 cubic yards;
- Active MSW Landfill Permit No. 498 – 1,199,224 cubic yards; and
- Active MSW Landfill Permit No. 588 – 7,700,000 cubic yards.

Condition 4: The permittee shall construct and operate a LFG collection and control system which:

- a. Is designed to handle the maximum expected gas flow rate from the entire area of the landfill, P01, that warrants control over the intended use period of the gas control or treatment system equipment;
- b. Collects gas from each area, cell, or group of cells where initial solid waste has been in place for a period of:
  - (i) Five years or more if active; or
  - (ii) Two years or more if closed or at final grade;
- c. Collect gas at a sufficient extraction rate;
- d. Is operated with each wellhead under negative pressure except as provided in 40 CFR 60.753(b);

- e. Is operated with each interior wellhead in the collection system having a landfill gas temperature less than 55 °C and having either:
  - (i) A nitrogen content less than 20%, as determined by EPA Method 3C (reference 40 CFR 60 Appendix A) unless an alternative test method is established as allowed by 40 CFR 60.752(b)(2)(i); or
  - (ii) An oxygen content less than 5%, as determined by an oxygen meter using EPA Method 3A or 3C (reference 40 CFR 60, Appendix A) except as specified in 40 CFR 60.753(c)(2), unless an alternative test method is established as allowed by 40 CFR 60.752(b)(2)(i);

A higher operating temperature, nitrogen, or oxygen value at a particular well may be established. A higher operating value demonstration shall show supporting data that the elevated parameter does not cause fires or significantly inhibit anaerobic decomposition by killing methanogens;

- f. Is designed to minimize off-site migration of subsurface gas;
- g. Routes all collected gas to a control system that complies with the requirements in either (i), (ii) or (iii) below:
  - (i) An open flare designed and operated in accordance with 40 CFR 60.18;
  - (ii) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight-percent or reduce the outlet NMOC concentration to less than 20 parts per million volume (ppmv), dry basis as hexane at 3 percent oxygen. The reduction efficiency or parts per million volume shall be established by an initial performance test to be completed no later than 180 days after the initial startup of the approved control system using the test methods specified in 40 CFR 60.754(d).
    - (1) If a boiler or process heater is used as the control device, the landfill gas stream shall be introduced into the flame zone.
    - (2) The control device shall be operated within the parameter ranges established during the initial or most recent performance test. The operating parameters to be monitored are specified in 40 CFR 60.756.

- (iii) A treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of g(i) or g(ii) above; and
- h. Maintains the methane concentration at the surface of the landfill at less than 500 ppmv above the background level.

Condition 5: The gas control system shall be in operation at all times when the collected gas is routed to the system. In the event the collection or control system is inoperable, the gas mover system shall be shut down and all valves in the collection and control system contributing to venting of the gas to the atmosphere shall be closed within 1 hour.

Condition 6: Each flare, PCD-01 and PCD-02, shall meet the criteria in 40 CFR 60.18.

Condition 7(a): Fugitive dust from grading, cell construction, waste compaction, application of daily cover, storage piles, material handling, load-outs and traffic areas shall be controlled by wet suppression or equivalent control measures (as approved by the DEQ). The General Requirements section of the Title V permit contains the same fugitive dust control requirements as Conditions 7(b) – 7(e) of the NSR permit. Therefore, to reduce redundancy, Conditions 7(b) – 7(e) of the NSR permit are not included in this section.

Condition 21: Each open flare, PCD-01 and PCD-02, shall be operated with no visible emissions, as determined by EPA Method 22 (reference 40 CFR 60, Appendix A), except for periods not to exceed a total of five minutes during two consecutive hours. This applies at all times except during startup, shutdown, and malfunction.

Condition 25: Except where this permit is more restrictive than the applicable requirements, the municipal solid waste landfill shall be constructed and operated in compliance with the requirements of 40 CFR 60, Subpart WWW.

Condition 37: The permittee shall take the following measures in order to minimize the duration and frequency of excess emissions, with respect to air pollution control equipment and process equipment which affect such emissions:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance.
- b. Maintain an inventory of spare parts.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.

- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

9 VAC 5-60-100, Subpart AAAA of Virginia air pollution regulations and the following provisions of 40 CFR Part 63, Subpart AAAA-National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills have been determined to be applicable:

40 CFR 63.1955(a)(1): Comply with the requirements of 40 CFR Part 60, Subpart WWW.

40 CFR 63.1960: Develop and implement a written Startup, Shutdown, and Malfunction (SSM) plan according to the provisions in 40 CFR 63.6(e)(3) and maintain a copy of the plan on site.

## **Monitoring**

The monitoring and recordkeeping requirements in Condition 28 of the NSR permit have been modified to meet Part 70 requirements.

Condition 8: The operation of the gas collection system shall be monitored as follows:

- a. The following items shall be monitored each month:
  - (i) Gauge pressure in the collection header at each individual well.
  - (ii) LFG temperature in each well.
  - (iii) Nitrogen concentration or oxygen concentration in each well.
  - (iv) Cover integrity of the landfill
- b. The methane concentration at the landfill surface shall be monitored in accordance with 40 CFR 60.755(c), and 40 CFR 60.756(f). All components of the leachate collection system that penetrate the surface of the landfill shall be included in the surface monitoring program.

Condition 9: The operation of the gas control system shall be monitored as follows:

- a. Installation and operation of a device that records gas flow to or bypass of each control device, P02, PCD-01 and PCD-02. Gas flow to each control device shall be

recorded at least every 15 minutes or each bypass line valve shall be secured in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of each seal or closure mechanism shall be performed at least once every month.

- b. When the incinerator, P02, is burning LFG: calibration, maintenance and operation, according to the manufacturer's specification, of a temperature monitoring device equipped with a continuous recorder and having a minimum accuracy of  $\pm 1$  percent of the temperature being measured expressed in degrees Celsius or  $\pm 0.5$  degree Celsius, whichever is greater.
- c. Calibration, maintenance and operation according to the manufacturer's specifications, of a heat sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light or the flame of each open flare, PCD-01 and PCD-02, to indicate the continuous presence of a flame.

Condition 10: If monitoring demonstrates that the LFG collection and control system operation requirements of Condition IV.A.2 are not being met, corrective actions shall be taken as specified in 40 CFR 755(a)(3) through (a)(5) or 40 CFR 60.755(c). If corrective actions are taken as specified in 40 CFR 60.755 (c)(4), the monitored exceedance is not a violation of the operational requirements of this permit or 40 CFR 60, Subpart WWW.

The visible emissions limitation for each open flare will be monitored by visible emission observations. The permittee shall perform a visible emission observation on each open flare, PCD-01 and PCD-02, once each calendar month when the unit is operating. Each visible emissions observation shall be performed for a sufficient period of time to identify the presence of visible emissions. If visible emissions (condensed water vapor/steam is not a visible emission) are observed during any of the visible emission observations, the permittee shall take appropriate action to correct the cause of opacity. If such action fails to eliminate visible emissions, the permittee shall conduct a visible emission observation in accordance with 40 CFR Part 60, Appendix A, Method 22 for a minimum of 6 minutes. If visible emissions are observed within the 6-minute observation period, the Method 22 observation shall continue for two hours to determine compliance with the opacity limit. The permittee shall record the details of each visible emission observation, which shall include, at a minimum, the date and time of the observation, whether there were visible emissions, and any corrective action. The permittee shall record the details of each Method 22 observation, which shall include, at a minimum, data required by 40 CFR Part 60, Appendix A, Method 22.

9 VAC 5-60-100, Subpart AAAA of Virginia air pollution regulations and the following provisions of 40 CFR Part 63, Subpart AAAA-National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills have been determined to be applicable:

40 CFR 63.1960: Compliance determinations same as 40 CFR Part 60, Subpart WWW.

40 CFR 63.1965: Deviation definition.

40 CFR 63.1975: 3-hour block average calculation.

## **Recordkeeping**

The permittee shall maintain the following records:

- a. The design capacity report, which made applicable 40 CFR 60.752(b), the current amount of solid waste in place, and the year-by-year waste acceptance rate. Off-site records may be maintained if they are retrievable within 4 hours. Either paper copy or electronic formats are acceptable.
- b. Vendor specifications of each LFG control device, P02, PCD-01 and PCD-02.
- c. Description, location, amount, and placement date of all non-degradable refuse, including asbestos and demolition refuse placed in landfill areas which are excluded from landfill gas estimation and landfill gas collection and control.
- d. Installation date and location of all installed collectors as specified under 40 CFR 60.755(b).
- e. Plot map showing each existing and planned collector in the gas collection system with each collector uniquely identified.
- f. The maximum expected LFG generation flow rate as calculated in 40 CFR 60.755(a)(1). Another method may be used to determine the maximum gas generation flow rate, if approved by DEQ.
- g. The density of wells, horizontal collectors, surface collectors, or other gas extraction devices determined using the procedures specified in 40 CFR 60.759(a)(1).
- h. The average combustion temperature of the incinerator, P02, when burning landfill gas, measured at least every 15 minutes and averaged over the same time period of the performance test.
- i. The percent reduction of NMOC achieved by the incinerator, P02, when burning landfill gas determined as specified in 40 CFR 60.752(b)(2)(iii)(B).



- j. Monitored parameters of the gas collection and control system and records of operation during which the parameter boundaries established during the most recent performance test are exceeded.
- k. For each open flare, PCD-01 and PCD-02: the flare type, all visible emission readings, heat content determination, flow rate or bypass flow rate measurements, and exit velocity determinations made during the performance test as specified in 40 CFR 60.18, continuous records of the flare pilot flame or flare flame monitoring and records of all periods of operation during which the pilot flame of the flare flame is absent.
- l. Continuous records of the indication of LFG flow to each control device, P02, PCD-01 and PCD-02, or the indication of bypass flow or records of monthly inspections of car-seals or lock-and-key configurations used to seal bypass lines.
- m. All collection and control system exceedances of the operational standards in 40 CFR 60.753, the reading in the subsequent month whether or not the second reading is an exceedance, and the location of each exceedance.
- n. Age of the landfill.

9 VAC 5-60-100, Subpart AAAA of Virginia air pollution regulations and the following provisions of 40 CFR Part 63, Subpart AAAA-National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills have been determined to be applicable:

40 CFR 63.1980(a): Keep records as specified in 40 CFR Part 60, Subpart WWW.

40 CFR 63.1980(b): Keep records as specified in the general provisions of 40 CFR Parts 60 and 63 such as SSM plans.

## Testing

The following testing requirements are from the minor NSR Permit issued on July 7, 2003, as amended November 13, 2003 and October 13, 2004:

Condition 16: The permitted facility shall be constructed so as to allow for emissions testing and monitoring upon reasonable notice at any time, using appropriate methods. This includes constructing the facility such that volumetric flow rates and pollutant emission rates can be accurately determined by applicable test methods and providing stack or duct that is free from cyclonic flow. Test ports shall be provided when requested at the appropriate locations (reference 40 CFR Part 60, Appendix B).

Condition 24: For the purpose of determining when the LFG collection and control

system can be removed, the NMOC emission rate shall be calculated as indicated in 40 CFR 60.754(b).

Condition 26: Initial performance tests shall be conducted to determine the net heating value of the gas to be combusted in the LFG&E flare, PCD-02, and the actual velocity for the flare. Applicable test methods and procedures contained in 40 CFR 60.18 or alternative test methods and procedures as approved by EPA shall be used.

Condition 27: A visible emissions evaluation in accordance with 40 CFR 60 Appendix A, Method 22, shall be conducted on the LFG&E flare, PCD-02, concurrently with the initial performance tests of the flare.

9 VAC 5-60-100, Subpart AAAA of Virginia air pollution regulations and the following provisions of 40 CFR Part 63, Subpart AAAA-National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills have been determined to be applicable:

40 CFR 63.1960: Compliance determinations same as 40 CFR Part 60, Subpart WWW.

## **Reporting**

The following reporting requirements are from the minor NSR Permit issued on July 7, 2003, as amended November 13, 2003 and October 13, 2004:

Condition 29: The permittee shall submit a semi-annual compliance report to DEQ and EPA containing the following:

- a. Value and length of time for exceedance of applicable parameters monitored under 40 CFR 60.756(a), (b), (c), and (d).
- b. Description and duration of all periods when the gas stream is diverted from each control device through a bypass line or the indication of bypass flow as specified under 40 CFR 60.756.
- c. Description and duration of all periods when each control device was not working for a period exceeding one hour and the length of time each control device was not operating.
- d. All periods when the collection system was not operating in excess of five days.
- e. The location of each exceedance of the 500 parts per million surface methane concentration, and the concentration recorded at each location for which an exceedance was recorded, as provided in 40 CFR 60.755(c).

- f. The date of installation and the location of each well or collection system expansion added pursuant to 40 CFR 60.755(a)(3), 40 CFR 60.755(b), and 40 CFR 60.755(c)(4).

Condition 30: The permittee shall submit a closure report to DEQ within 30 days of the date the MSW landfill stops accepting waste.

Condition 31: The permittee shall submit an equipment removal report to DEQ at least 30 days prior to removal or cessation of operation of control equipment.

Condition 32: The permittee shall calculate and submit to DEQ actual emissions that are subject to permit program fees.

The permittee shall submit an amended design capacity report to DEQ providing notification of an increase in the design capacity of the landfill within 90 days of issuance of an amended construction or operating permit, or placement of waste in additional land, or change in operating procedures which will result in an increase in maximum design capacity, whichever occurs first.

9 VAC 5-60-100, Subpart AAAA of Virginia air pollution regulations and the following provisions of 40 CFR Part 63, Subpart AAAA-National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills have been determined to be applicable:

40 CFR 63.1980(a): Report as specified in 40 CFR Part 60, Subpart WWW except submit the annual report described in 40 CFR 60.757(f) every 6 months.

40 CFR 63.1980(b): Report as specified in the general provisions of 40 CFR Parts 60 and 63 such as SSM plan reports.

An LFG collection and control system is currently operating for each landfill unit at the facility. Therefore, in accordance with 40 CFR 60.757(b)(3), Condition IV.E.6 in the current Title V permit does not apply and will be removed.

**EMISSION UNIT APPLICABLE REQUIREMENTS – LANDFILL SURFACE AND ROADS REQUIREMENTS (P03):**

Except for Condition V.A.1.a, Section V. Landfill Surface and Roads only contains the same general fugitive dust control limitations as in the General Requirements section of the Title V permit. Therefore, to reduce redundancy, Section V, Landfill Surface and Roads, has been removed from the permit and the requirements of Condition V.A.1.a pertaining to control of fugitive dust emissions from grading, cell construction, waste compaction, application of daily cover, storage piles, material handling, load-outs and traffic areas have been included in Condition

IV.A.5.a. Emission unit, P03, Landfill Surface and Roads, is referenced in the Landfill Requirements section of the Title V permit.

## **GENERAL CONDITIONS**

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating-permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

### **Comments on General Conditions**

#### **B. Permit Expiration**

This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the *Code of Virginia*, and the “Department of Environmental Quality Agency Policy Statement No. 3-2001”.

#### **F. Failure/Malfunction Reporting**

Section 9 VAC 5-120-180 requires malfunction and excess emissions reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to 9 VAC 5-20-180 including Title V facilities. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four day time business hours after discovery of the malfunction.

#### **U. Malfunction as an Affirmative Defense**

The regulations contain two reporting requirements for malfunction that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on General Condition F.

#### **Y. Asbestos Requirements**

The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

## INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation <sup>1</sup> (9 VAC__)	Pollutant Emitted (5-80-720 B.)	Rated Capacity ( 5-80-720 C.)
P04	Leachate Collection and Storage	5-80-720 B	NMOC and VOC	N/A
P05	Tire Shredding	5-80-720 B	PM	N/A
-----	Small Storage Tanks	5-80-720 B	NMOC and VOC	

<sup>1</sup>The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A – Listed Insignificant Activity, Not Included in Permit Application

9 VAC 5-80-720 B – Insignificant due to emission levels

9 VAC 5-80-720 C – Insignificant due to size or production rate

## CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

## PUBLIC PARTICIPATION

A public notice regarding the draft permit was published in the Bristol Herald Courier newspaper in Bristol, Virginia on December 8, 2005. A copy of the draft permit was sent to the EPA by electronic mail on December 2, 2005. A copy of the public notice was sent to the affected states, which include Kentucky, Tennessee and North Carolina, by postal mail on December 2, 2005. A copy of the public notice was sent to all persons on the Title V mailing list by postal mail, facsimile or electronic mail no later than December 8, 2005.

Public comments were accepted from December 8, 2005, through January 7, 2006. No comments were received from the public or the affected states regarding the draft permit.

## Appendix A

### Incinerator Hazardous Air Pollutant Emissions for 2004

The Title V Annual Compliance Certification submitted to DEQ by the permittee for 2004, indicates total throughput of wood waste to the incinerator during 2004 was 2,828 tons/yr, and total throughput of paper waste was 2.91 tons/yr.

Only clean wood waste and paper documents are permitted to be burned in the incinerator. Predicted emissions of HAP from combustion of wood waste are calculated using emission factors from Tables 1.6-3 and 1.6-4 in AP-42, Section 1.6, Wood Residue Combustion in Boilers. Predicted emissions of HAP from combustion of paper are calculated using emission factors from Tables 2.1-2, and 2.1-9 in AP-42, Section 2.1, Refuse Combustion. Emissions from combustion of the two types of waste are added together to calculate total predicted emissions of a pollutant. Using the wood residue combustion factors along with the refuse combustion factors more accurately reflects actual operating conditions of and emissions from the incinerator rather than only using the refuse combustion factors.

The average heating value of wood burned in the incinerator is assumed to be 6000 Btu/lb (12 MMBtu/ton).

#### Cadmium

$(4.1 \text{ E-06 lb/MMBtu})(12 \text{ MMBtu/ton})(2,828 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 6.96 \text{ E-05 ton/yr}$   
 $(2.41 \text{ E-03 lb/ton})(2.91 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 3.5 \text{ E-06 ton/yr}$   
Total cadmium:  $7.31 \text{ E-05 ton/yr}$

#### Dioxins/Furans

The dioxin/furan emission factor for wood combustion is the total of all dioxin/furan compound emission factors listed in AP-42, Table 1.6-3  
 $(1.67 \text{ E-06 lb/MMBtu})(12 \text{ MMBtu/ton})(2,828 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 2.83 \text{ E-05 ton/yr}$   
 $(2.94 \text{ E-06 lb/ton})(2.91 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 4.28 \text{ E-09 ton/yr}$   
Total dioxins/furans:  $2.83 \text{ E-05 ton/yr}$

#### Hydrogen Chloride

$(1.9 \text{ E-02 lb/MMBtu})(12 \text{ MMBtu/ton})(2,828 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 3.22 \text{ E-01 ton/yr}$   
 $(2.15 \text{ lb/ton})(2.91 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 3.13 \text{ E-03 tons/yr}$   
Total hydrogen chloride:  $3.25 \text{ E-01 ton/yr}$

#### Lead

There is no factor for uncontrolled lead emissions from starved-air combustors in AP-42, Table 2.1-9; therefore, the uncontrolled lead emission factor for excess air combustors in AP-42, Table 2.1-2 is used.  
 $(4.8 \text{ E-05 lb/MMBtu})(12 \text{ MMBtu/ton})(2,828 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 8.14 \text{ E-04 ton/yr}$   
 $(2.13 \text{ E-01 lb/ton})(2.91 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 3.1 \text{ E-04 ton/yr}$   
Total lead:  $1.12 \text{ E-03 ton/yr}$

Mercury

$$(3.5 \text{ E-06 lb/MMBtu})(12 \text{ MMBtu/ton})(2,828 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 5.94 \text{ E-05 ton/yr}$$

$$(5.6 \text{ E-03 lb/ton})(2.91 \text{ tons/yr})(1 \text{ ton}/2,000 \text{ lb}) = 8.15 \text{ E-06 ton/yr}$$

Total mercury:  $6.76 \text{ E-05 ton/yr}$

## Appendix B

### Incinerator Criteria Pollutant Emissions

Emission factors for CO and PM/PM-10 have been calculated by averaging the maximum emission factor from each stack test conducted on the incinerator exhaust in 1994, 1995, 1997, 1999 and 2002. The stack test conducted in 2005 did not include PM or CO.

Emission factors for NO<sub>x</sub> and VOC are calculated using the maximum emission rate for those pollutants from the 2002 stack test. The 2002 stack test is the only stack test on the incinerator that includes NO<sub>x</sub>. There have been no stack tests for VOC emissions from the incinerator; however, the incinerator exhaust was tested for NMOC in 2002. VOC emissions are considered equal to NMOC emissions for these calculations.

There have been two stack tests for SO<sub>2</sub>, one in 2002 and one in 2005. The emission factor for SO<sub>2</sub> has been calculated using the average SO<sub>2</sub> emission rate from the 2005 stack test data, which produces a higher emission factor than the 2002 stack test data.

<u>Pollutant</u>	<u>Emission Factor (lb/T)</u>
PM/PM-10	1.97
CO	1.27
NO <sub>x</sub>	2.83
SO <sub>2</sub>	0.48
VOC	0.07

Predicted emissions based on a maximum capacity of 1,700 lb/hr (0.85 T/hr) and the total annual amount of waste (4,640 T/yr of wood and 2,500 T/yr of paper) permitted to be burned in the incinerator are calculated as follows:

#### PM/PM-10

$$(1.97 \text{ lb/T})(0.85 \text{ T/hr}) = 1.67 \text{ lb/hr}$$

$$(1.97 \text{ lb/T})(7,140 \text{ T/yr})(1 \text{ T}/2,000 \text{ lb}) = 7.03 \text{ T/yr}$$

#### CO

$$(1.27 \text{ lb/T})(0.85 \text{ T/hr}) = 1.08 \text{ lb/hr}$$

$$(1.27 \text{ lb/T})(7,140 \text{ T/yr})(1 \text{ T}/2,000 \text{ lb}) = 4.53 \text{ T/yr}$$

#### NO<sub>x</sub>

$$(2.83 \text{ lb/T})(0.85 \text{ T/hr}) = 2.41 \text{ lb/hr}$$

$$(2.83 \text{ lb/T})(7,140 \text{ T/yr})(1 \text{ T}/2,000 \text{ lb}) = 10.1 \text{ T/yr}$$

#### SO<sub>2</sub>

$$(0.48 \text{ lb/T})(0.85 \text{ T/hr}) = 0.41 \text{ lb/hr}$$

$$(0.48 \text{ lb/T})(7,140 \text{ T/yr})(1 \text{ T}/2,000 \text{ lb}) = 1.71 \text{ T/yr}$$



### VOC

$$(0.07 \text{ lb/T})(0.85 \text{ T/hr}) = 0.06 \text{ lb/hr}$$

$$(0.07 \text{ lb/T})(7,140 \text{ T/yr})(1 \text{ T}/2,000 \text{ lb}) = 0.25 \text{ T/yr}$$

State BACT for PM emissions from an incinerator of this type and size is 0.1 gr/dscf. The average of the maximum flow rates (6,844 dscfm) from the stack tests conducted in 1995, 1997, 1999, and 2002, is used to calculate the hourly PM emission rate resulting from BACT as follows:

$$(6,844 \text{ dscfm})(0.1 \text{ gr/dscf})(60 \text{ min/hr})(1 \text{ lb}/7000 \text{ gr}) = 5.87 \text{ lb/hr}$$

Predicted hourly PM emissions resulting from the maximum loading capacity are 1.67 lb/hr. Since predicted PM emissions are below BACT emissions for PM, compliance with the BACT limit for PM can be predicted.

State BACT for CO emissions from an incinerator of this type and size is 100 ppm. The hourly CO emission rate resulting from BACT is calculated using the following equation:

$$\frac{100 \text{ ppm} (F)(Q)(20.9\% - \%O_2)}{(20.9\% - 7\%)}$$

where: 100 ppm = CO BACT limit corrected to 7% O<sub>2</sub>,  
F = CO conversion factor, 7.2727 x 10<sup>-8</sup> (lb/ft<sup>3</sup>)/(ppm),  
Q = average maximum flow rate, 410,640 dscf/hr  
20.9% = percent oxygen in atmosphere,  
%O<sub>2</sub> = 11.88 percent oxygen in exhaust gas. For this evaluation it is the average of the minimum concentrations of %O<sub>2</sub> from each stack test.

The hourly CO mass emission rate resulting from BACT as calculated using the equation above is 1.94 lb/hr. Predicted hourly CO emissions resulting from the maximum loading capacity are 1.08 lb/hr. Since predicted CO emissions are below BACT emissions for CO, compliance with the BACT limit for CO can be predicted.